

FULL CONSTITUTION OF THE AUSTRALIAN GENUS *PAPPOCHROMA*
(ASTERACEAE: ASTEREAEE)

Guy L. Nesom

BONAP--North Carolina Botanical Garden, Coker Hall CB 3280, University of North Carolina, Chapel Hill, North Carolina 27599 U.S.A.

ABSTRACT

The observation by Forbes & Morris (1996) that the Australian taxa *Pappochroma* Raf. and *Lagenithrix* Nesom are part of a single phylad is reasonable and their taxonomic revision of the group provides needed clarification. Treatment of these nine species within the subtribe Lageniferinae, however, is a more realistic assessment of their morphology and relationships than their placement within the genus *Erigeron* (Conyzinae). This group is consolidated here within *Pappochroma*, requiring new combinations as follows: *P. bellidioides* (Hook. f.) Nesom, *comb. nov.*, *P. nitidum* (S.J. Forbes) Nesom, *comb. nov.*, *P. paludicola* (S.J. Forbes) Nesom, *comb. nov.*, *P. gunnii* (Hook. f.) Nesom, *comb. nov.*, *P. setosum* (Benth.) Nesom, *comb. nov.*, *P. stellatum* (Hook. f.) Nesom, *comb. nov.*, and *P. trigonum* (S.J. Forbes & D.I. Morris) Nesom, *comb. nov.*

KEY WORDS: *Pappochroma*, *Lagenithrix*, *Erigeron*, Asteraceae, Astereae, taxonomy, nomenclature, Australia

In an earlier study (Nesom 1994a), a group of Australian species of *Erigeron* was placed into two separate genera, both of which I hypothesized to be more closely related to *Lagenifera* and other genera placed within the Lageniferinae (*sensu* Nesom 1994b). I observed (1994a, p. 155) that "Within the domain of relationship of the papose species here placed in *Lagenopappus* and *Lagenithrix*, it might appear that only a single genus is represented." Based on my limited sampling, however, I was not able to conclude that the two groups were most closely related to each other. I further noted that several undescribed taxa existed in the *Erigeron pappocromus* Labill. group (*Lagenopappus*) and treated it tentatively "without the direction of a much-needed revision of this complex," merely referring to the entities informally pointed out by earlier researchers (*e.g.*, Gray in Costin *et al.* 1979; Jacobs & Pickard 1981; Porteners 1992) and noting that nomenclatural modifications would be required as this group was studied. It was quickly recognized that Rafinesque's "*Pappochroma*" was the correct name for the group I segregated as *Lagenopappus* (Nesom 1994c). Forbes & Morris (1996) have since provided the taxonomic revision of this species complex

and emphasized that the taxa I separated at generic rank are indeed but points along a "clear gradation in the series of species" (p. 176) within a single monophyletic group, which they maintained within *Erigeron*, adding three species without previous formal description. Based on their field experience and first-hand knowledge of the Australian plants, their presentation of the species delimitations and argument for the coherence of the group is convincing. On the other hand, the primary thrust of my 1994 discussion, as I tried to convey, was that these species do not belong in *Erigeron* or even the subtribe Conyzinae (sensu Nesom 1994b, with modifications suggested by Noyes, in press).

The Australian species considered here differ from *Erigeron* and all Conyzinae in their achenes with a tendency to produce a narrowed apex with viscid, sessile, caducous, or persistent glands. Forbes & Morris noted that "the thickened apical collar" that I described "is rather illusory and certainly not comparable to that of *Lagenifera*." The glandular achene apex, sometimes observed as an apical collar, of these Australian species is not identical to that of *Lagenifera* but the resemblance is more than an illusion. My observation was (and remains) that the achene apex of these species clearly is comparable to the glandular achene apex of *Lagenifera*. More precisely, in view of the similarity of these species to *Lageniferinae* in habit and other features (as discussed in detail in Nesom 1994a), as well as their obvious geographic proximity, the achenes appear to be homologous in this aspect of their morphology.

A characteristic feature of Conyzinae is the presence of conspicuous orange resin ducts along the veins of phyllaries, disc corollas, and achenes. These structures are uncommon elsewhere in the Astereae, and they apparently do not occur in *Lageniferinae*. The Australian plants considered here do not produce orange resin ducts, and in view of the consistency with which such structures occur in Conyzinae, I consider this further evidence for treating *Pappochroma* as a genus unrelated to *Erigeron*. As I noted earlier, were it not for production of a pappus of persistent barbellate bristles and relatively conspicuously ligulate ray flowers, both features plesiomorphic and generalized across the whole of Astereae, I believe the similarity of these plants to *Lagenifera* and related genera surely would have been recognized before now.

A nomenclatural summary is provided here, consolidating the species within *Pappochroma*. Full synonymy is given in Forbes & Morris (1996).

Pappochroma Raf., *Fl. Tellur.* 2:48. 1836 [1837].

Lagenithrix Nesom, *Phytologia* 76:148. 1994.

Lagenopappus Nesom, *Phytologia* 76:153. 1994.

1. *Pappochroma bellidioides* (Hook. f.) Nesom, *comb. nov.*
[H]*Aplopappus bellidioides* Hook. f., *Hooker's London J. Bot.* 6:112. 1847.
Erigeron bellidioides (Hook. f.) S.J. Forbes & D.I. Morris, *Muelleria* 9:183. 1996.

2. *Pappochroma gunnii* (Hook. f.) Nesom, *Phytologia* 76:426. 1994.
 [H]*Aplopappus gunnii* Hook. f., *Hooker's London J. Bot.* 6:111. 1847.
Erigeron gunnii (Hook. f.) F. Muell. ex Hook. f., *Fl. Tasman.* 1:183. 1856.
Lagenopappus gunnii (Hook. f.) Nesom, *Phytologia* 76:154. 1994.
3. *Pappochroma nitidum* (S.J. Forbes) Nesom, *comb. nov.*
Erigeron nitidus S.J. Forbes, *Muelleria* 9:181. 1996.

4. *Pappochroma pappocromum* (Labill.) Nesom, *comb. nov.*
Erigeron pappocromus Labill., *Nov. Holl. Pl.* 2:47 t. 193. 1806.
Pappochroma uniflorum (as "uniflora") Raf., *Fl. Tellur.* 2:48. 1836 [1837].
Lagenopappus pappocromus (Labill.) Nesom, *Phytologia* 76:154. 1994.

Rafinesque treated the generic name *Pappochroma* as feminine, using the epithet "*uniflora*." I accept the view (as noted by Paul Wilson, *vide* Forbes & Morris) that because the Greek "*chroma*" is neuter in gender, and that because the slight difference in spelling skirts the illegitimacy of tautonymy, the correct name should be as the combination provided above.

5. *Pappochroma paludicola* (S.J. Forbes) Nesom, *comb. nov.*
Erigeron paludicola S.J. Forbes, *Muelleria* 9:178. 1996.
6. *Pappochroma setosum* (Benth.) Nesom, *comb. nov.*
Erigeron pappocromus Labill. var. *setosus* Benth., *Fl. Austral.* 3:494. 1867.
Erigeron setosus (Benth.) M. Gray, *Contr. Herb. Austr.* 6:1. 1974.
Lagenithrix setosa (Benth.) Nesom, *Phytologia* 76:150. 1994.
7. *Pappochroma stellatum* (Hook. f.) Nesom, *comb. nov.*
 [H]*Aplopappus stellatus* Hook. f., *Hooker's London J. Bot.* 6:112. 1847.
Erigeron stellatus (Hook. f.) W.M. Curtis, *Students Fl. Tasman.* Pt. 2:463. 1856.
Lagenithrix stellata (Hook. f.) Nesom, *Phytologia* 76:151. 1994.

Forbes & Morris (p. 176) note that "fertility of the florets is difficult to establish as mature achenes are rarely produced." My observation that *Pappochroma stellatum* has functionally staminate disc flowers (with sterile ovaries) was based on its production of disc style branches without stigmatic lines, an absolutely consistent concomitant of ovarian sterility in various genera of Astereae.

8. *Pappochroma tasmanicum* (Hook. f.) Nesom, *Phytologia* 76:426. 1994.
 [H]*Aplopappus tasmanicus* Hook. f., *Hooker's London J. Bot.* 6:110. 1847.
Erigeron tasmanicus (Hook. f.) Hook. f., *Fl. Tasman.* 1:183, t. 46A. 1856.
Lagenopappus tasmanicus (Hook. f.) Nesom, *Phytologia* 76:154. 1994.

9. *Pappochroma trigonum* (S.J. Forbes & D.J. Morris) Nesom, *comb. nov.*
Erigeron trigonus S.J. Forbes & D.I. Morris, *Muelleria* 9:187. 1996.

Forbes & Morris expressed concern about the identity of "the alpine New Guinean *Erigeron* species recognized by Van Royen (1983)," apparently in the same context as the evaluation of the generic identity of the Australian species. The two species described and illustrated by Van Royen, *E. sumatrensis* Retz and *E. canadensis* L., are cosmopolitan weeds generally treated as *Conyza* and are bonafide members of the Conyzinae.

ACKNOWLEDGMENTS

I am grateful to John Strother for helpful comments and criticisms of the manuscript.

LITERATURE CITED

- Costin, A.B., M. Gray, C.J. Totterdell, & D.J. Wimbush. 1979. *Kosciusko Alpine Flora*. Commonwealth Scientific and Industrial Research Organization (CSIRO), East Melbourne, Australia.
- Forbes, S.J. & D.I. Morris. 1996. A review of the *Erigeron pappocromus* Labill. complex. *Muelleria* 9:175-189.
- Jacobs, S.W.L. & J. Pickard. 1981. *Plants of New South Wales: A Census of the Cycads, Conifers and Angiosperms*. Royal Botanic Gardens, Sydney, Australia.
- Nesom, G.L. 1994a. Taxonomic dispersal of Australian *Erigeron* (Asteraceae: Astereae). *Phytologia* 76:143-159.
- Nesom, G.L. 1994b. Subtribal classification of the Astereae (Asteraceae). *Phytologia* 76:193-274.
- Nesom, G.L. 1994c. *Pappochroma* Rafin. is the correct generic name for *Erigeron pappocromus* Labill. *Phytologia* 76:426.
- Noyes, R.D. In press. Biogeographical and evolutionary insights on *Erigeron* and allies (Asteraceae) from ITS sequence data. *Pl. Syst. Evol.*
- Porteners, M.F. 1992. *Erigeron*. Pp. 175-177. In: G.J. Harden (ed.), *Flora of New South Wales*, vol. 3. New South Wales University Press, Kensington, Australia.
- Van Royen, P. 1983. *The Alpine Flora of New Guinea*, vol. 4, Taxonomic part, Casuarinaceae to Asteraceae. J. Cramer, Vaduz, Lichtenstein.